Methamphetamine

Names



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Identify Abuse and Treatment

Description

Methamphetamine

Description

Methamphetamine is a Schedule II stimulant, which means it has a high potential for abuse and is available only through a prescription that cannot be refilled. There are a few accepted medical

reasons for its use, such as the treatment of narcolepsy,



attention deficit disorder, and for short-term use-obesity; but these medical uses are limited.

Methamphetamine is a man-made stimulant. The vast bulk of methamphetamine currently on the streets has been illegally manufactured. Methamphetamine trafficking was once dominated by outlaw motorcycle gangs, but is now primarily comprised of Mexican nationals with ties to criminal organizations in both the U.S. and Mexico. The Mexican involvement may have also contributed to the rapid spread of the drug because the distribution networks originally developed for transporting cocaine, heroin and marijuana from Mexico have been in place for years and are now being used for methamphetamine. There is also an increasing number of small scale labs being set up in rural areas of Midwestern states such as Missouri, Kansas, and lowa.

The chemicals used in the manufacturing process can be corrosive, explosive, flamma-

ble, toxic, and, possibly, radioactive. For every pound of finished product, 5 or 6 pounds of chemical waste is left at the illicit lab site. Possible ingredients include brick and driveway cleaner (muriatic acid/dilute hydrochloric acid), drain cleaner (lye/sodium hydroxide), starting fluid (ethyl ether), and "VICKS" nasal inhalers (desoxyephedrine).

There are currently three types of methamphetamine:

L-methamphetamine-Levo-methamphetamine raises the blood pressure and causes the heart to beat rapidly, but does not increase alertness very much. Shakes/tremors and stomach cramps are common

physical side-effects.

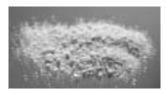
D/L-methamphetamine-Dextro-levo methamphetamine is made with the amalgam (P2P) method. It was popular during the 1960s, but it is still made and distributed- primarily by outlaw motorcycle gangs. It has to be injected to get the desired rush and produces side effects such as shakes, tremors, and stomach cramps. D-methamphetamine-

Dextro-methamphetamine is the most common currently. It originated during the 1980s. It is made by the ephedrine reduction process. It is 2 to 10 times as physiologically active as Lmethamphetamine. It increases the heart rate, blood pressure, body temperature, and rate of breathing and dilates the pupils, and has fewer adverse side effects than the other two types of methamphetamine. The term "ice" most often refers to a pure form of dmethamphetamine HCI. "Ice." is a smokeable form of methamphetamine. It is a large, usually clear crystal of high purity that is smoked in a glass pipe. The smoke is odorless. leaves a residue that can be re-smoked, and produces effects that may continue for 12 hours or more.

Methamphetamine comes in pill, powder, clear liquid, and rock form (that resembles a block of paraffin). The coloration of methamphetamine may vary significantly due to the manufacturing process and as a result, it may have a foul rancid odor.

Possible colors include:

Colorless/white: Methamphetamine in its pure hydrochloride salt form. It is an odorless, bitter-tasting crystalline powder that easily dissolves in water or alcohol.



- Red: The product was made from pseudoephedrine, the red coloring of the tablet was not adequately washed away.
- Orange: Ephedrine sulfate was used, and some of the sulfate was reduced to sulfur.
- Purple: lodine from a phosphorus-iodine reaction was not washed out.
- Green: Copper (or other metallic) salts somehow made their way into the mixture, probably due to the reaction vessel used in the manufacture.
- Brown: Oxidized red coloring, or tablating agent was present in the reduction.

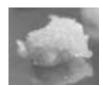
Prices for methamphetamine range from \$37-\$1,000 per gram depending on the purity and area of the country purchased.

Names

The brand or common name for methamphetamine is Desoxyn.

Methamphetamine is commonly known as "speed," "meth," and

"chalk." Other street names for methamphetamine include: beenies, blue meth, blue mollies, bomido, CR, crank, cranksters, crink, cris, croak, crossles, crypto, crystal, crystal meth, desocsins, desogtion, desocins, fire, go-fast, granulated orange, lines, methlies quik, Mexican crack, peanut butter, powder, quill, rose, shabu, sketch, stove top, water, wet, white cross, wolminic nasal spray, yellow bam, yellow powder, and water.



In its smoked form it is often referred to as "ice," "crystal," "crank," and "glass."

Methamphetamine got the nickname "crank" because bikers use to hide it in the crankcase of their motorcycles. Other street names for the smokeable form of methamphetamine include Batu, Cristy, Hanyak, Hiropon, Hot ice, Kaksonjae, L.A. glass, L.A. ice, Quartz, Super ice.

Some street names denote a particular type of methamphetamine such as Cristina which is a Spanish term, methamphetamine with a dull yellow tint is referred to as Lemon drop, methamphetamine with a pinkish tint is referred to as Soap dope, and green methamphetamine is known as Grimace or The Green Monster.

How Used

Methamphetamine is commonly smoked, injected intravenously, or snorted. The primary route of administration varies, even within regions. Smoking is becoming the most popular method of administration followed closely by inhalation/sniffing. When it is smoked or injected intravenously, methamphetamine produces an intense, extremely pleasurable "rush" almost immediately that lasts only a few minutes, followed by euphoria, referred to as a "high." Snorting or oral ingestion produces euphoria- a high but not an intense rush. Snorting produces effects within 3 to 5 minutes, and oral ingestion produces effects within 15 to 20 minutes.

Methamphetamine is commonly combined with morphine, heroin or cocaine in a "speedball." It is also used in conjunction with marijuana or alcohol. Methamphetamine is most often used in a "binge and crash" pattern. Tolerance for methamphetamine occurs within minutes- meaning that the pleasurable effects begin to disappear even before the drug concentration in the blood falls significantly- users try to maintain the high by binging on the drug.

Abuse Patterns: Low-intensity abuse describes a user who is not addicted to the drug, but uses dmethamphetamine on a casual basis by swallowing it or snorting it. Binge and high-intensity

abusers are addicted and prefer to smoke or inject d-methamphetamine to achieve a faster and stronger high. Binge abusers use d-methamphetamine more than low-intensity abusers but less than high-intensity abusers.

Low-intensity Abuse:

- Low-intensity abusers swallow or snort dmethamphetamine, using it in the same way many people use caffeine or nicotine. Low-intensity abusers want the extra stimulation the dmethamphetamine provides so they can stay awake long enough to finish a task or a job, or they want the appetite suppressant effect to lose weight. They already know the stimulating effect that dmethamphetamine provides them by swallowing or snorting the drug, but they have not experienced the euphoric rush associated with smoking or injecting it and have not encountered clearly defined stages of addiction.
- Binge Abuse: Binge abusers smoke or inject d-methamphetamine and experience euphoric rushes that are psychologically addictive.
 - Rush: The rush is the initial response the abuser feels when smoking or injecting d-methamphetamine.
 During the rush, the

- abuser's heartbeat races and metabolism, blood pressure, and pulse soar. The rush can last for 5-30 minutes.
- High: The rush is followed by the high. The abuser often feels aggressively smarter and becomes argumentative, often interrupting other people and finishing their sentences. The high can last for 4-16 hours.
- Binge: The binge is a continuation of the high. The abuser maintains the high by injecting or smoking more d-methamphetamine. A smaller euphoric rush than the initial rush is experienced until there is no rush and no high. During the binge, the abuser becomes hyperactive both mentally and physically. A binge can last 3-15 days.
- Tweaking: Tweaking occurs at the end of the binge when nothing the abuser does will take away the feeling of emptiness and "dysphoria," including more d-methamphetamine. The abuser frequently takes a depressant (like alcohol or heroin) to ease the bad feelings. Tweaking is the most dangerous stage of the d-methamphetamine abuse cycle to individuals near the abuser.
- Crash: The crash means an incredible amount of

- sleep. The body's epinephrine has been depleted, and the body uses the crash to restore its supply. The abuser becomes almost lifeless during the crash and poses a threat to no one. The crash can last 1-3 days.
- returns to "normal" following the crash. However, this is a state that is slightly deteriorated from the "normal" state before the dmethamphetamine abuse. The stage normally lasts 2-14 days. As the frequency of the binging increases, the duration of the normal stage decreases.
- · Withdrawal: No acute, immediate symptoms of physical distress are evident with dmethamphetamine withdrawal. Often 30-90 days must pass after the last drug use before the abuser realizes he is in withdrawal. First, without really noticing, the individual becomes depressed, loses the ability to experience pleasure, and becomes lethargic. Then the craving for more dmethamphetamine hits, and the abuser often becomes suicidal. If the abuser takes more d-methamphetamine during withdrawal, the unpleasant feelings will
- High-Intensity Abuse: If someone is abusing this drug at a high-intensity level, they may be moving into an

addictive phase. Their whole existence focuses on preventing the crash, and they seek that elusive, perfect rush- the rush they had when they first started smoking or injecting dmethamphetamine. During each subsequent binge, the abuser needs more dmethamphetamine, more often, to get a high that is not as good as the high he wants or remembers. In an attempt to appear normal, high-intensity abusers will make themselves take short naps; otherwise, they see no need to come down from the high.

- **Dangerous Tweakers**: A d-methamphetamine abuser is most dangerous when tweaking. When tweaking, the abuser has probably not slept in 3-15 days and consequently will be extremely irritable. The tweaker craves more dmethamphetamine, but no dosage will help re-create the euphoric high. The result is a strong feeling of uncontrollable frustration that makes the tweaker unpredictable and dangerous.
 - The tweaker appears superexaggerated normal. The tweakers eyes are clear, his speech concise, and his movements brisk. A closer look will show that his eyes are moving about ten times faster than normal and may roll, his voice may have a slight quiver to it, and his

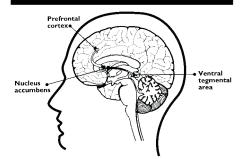
- movements are quick and jerky.
- The tweaker does not need provocation to react violently. A tweaker exists in his own world, seeing and hearing things that no one else can perceive. His hallucinations are so vivid that they seem real.
- If a tweaker has chosen to ease his discomfort with alcohol, identifying him as a tweaker may become difficult because the impairment from the alcohol may slow his actions to an apparently normal speed.

Effects

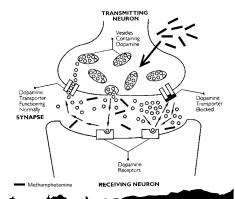
Chemically, methamphetamine is closely related to amphetamine, but it has greater effects on the brain. Methamphetamine is also chemically similar to dopamine and another neurotransmitter, norepinephrine. It produces its effects by causing dopamine and norepinephrine to be released into the synapse in several areas of the brain, including the nucleus accumbens, prefrontal cortex, and the striatum, a brain area involved in movement. Specifically, methamphetamine enters nerve terminals by passing directly through nerve cell membranes. It is also carried into the nerve terminals by transporter molecules that normally carry dopamine or norepinephrine from the synapse back into the nerve terminal. Once in the nerve terminal, methamphetamine enters dopamine- and norepinephrine- containing

vesicles and causes the release of the neurotransmitters. Excess dopamine and norepinephrine would normally be chewed up by enzymes in the cell, however, methamphetamine blocks this breakdown. The excess neurotransmitters are then carried by transporter molecules out of the neuron and into the synapse. Once in the synapse, the high concentration of dopamine causes feelings of pleasure and euphoria. The excess norepinepherine may be responsible for the alertness and antifatigue effects of methamphetamine.

The brain- Dopamine plays an important role in the regulation of pleasure. In addition to other regions, dopamine is manufactured in nerve cells within the ventral tegmental area and is released in the nucleus accumbens and the frontal cortex.



Methamphetamine stimulates excess release of dopamine.



Immediate Effects: Immediate effects can include irritability and anxiety; increased body temperature, heart rate, and blood pressure; and possible death.

Short-term effects: Short-term effects also can include increased activity, respiration, and wakefulness, and decreased appetite.

Long-term Effects:

- Chronic methamphetamine abuse can include dependence and possible stroke. Chronic abuse of methamphetamine also can lead to psychotic behavior characterized by paranoia, hallucinations, mood disturbances, and violence. Psychotic symptoms can sometimes persist for months or years after use has ceased.
- Methamphetamine use contributes to the transmission of HIV/AIDS through intravenous injection. Methamphetamine use in conjunction with high-risk sexual behaviors also contributes to the transmission of HIV/AIDS.
- Acute lead poisoning is another potential risk for methamphetamine abusers. A common illegal method of production uses lead acetate as a reagent. Production errors may result in methamphetamine contaminated with lead.
- Hyperthermia (elevated body temperature) and convulsions

occur with methamphetamine overdoses, and if not treated immediately, can result in death. Overdose patients are cooled off in ice baths, and anti-convulsant drugs may be administered. Acute methamphetamine intoxication can often be handled by observation in a safe, quiet environment.

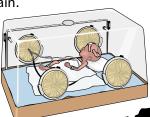
Toxicity

- Methamphetamine is neurotoxic in animal species ranging from mice to monkeys; the drug damages the neurons that produce the neurotransmitters dopamine and serotonin. Research with laboratory animals has demonstrated that exposure to a single, high dose of methamphetamine or prolonged exposure at low doses destroys up to fifty percent of the dopamine-producing neurons in certain parts of the brain. The usual doses taken by human methamphetamine abusers are comparable to the doses that produce neurotoxicity in animals.
- Mervous System Toxicity:
 Methamphetamine produces
 a dose-related depletion of
 dopamine and serotonin
 levels that is evident as long
 as 2 weeks after the drug is
 discontinued in animal
 studies. Examples of
 extreme depletion of dopamine (on the order of 90-95
 percent) include Parkinson's
 Disease.

- Other Organ Toxicity:
 - Methamphetamine effects multiple other organ systems including the heart, lungs, kidneys, and liver. Methamphetamine-induced cardiotoxicity is sometimes manifested as arrythmic sudden death. In such cases, subendocardial hemorrhages are often present. Considering the large number of individuals who use and abuse methamphetamine, the rate of methamphetamineinduced sudden death is remarkably low. Possibly this is due to the rapid development of tolerance, which offers some protection against cardiotoxicity, or the predominately oral route of administration, which results in a more gradual rise and lower peak blood levels. Recent increases in the number of methamphetamine-related sudden deaths combined with the shift to smoking and intravenous abuse suggest that rapid delivery of a bolus drug dose is more likely to precipitate a severe reaction that can lead to death.
- Toxic Psychosis: The incidence and severity of methamphetamine-induced side effects and toxic reactions is dose-related. As the dose is increased, the profile of side effects progresses from mild excitement to nervousness, irritability, anxiety, tremors, aggressiveness, paranoia and, often

auditory or other tactile hallucinations. The resultant psychotic reaction is indistinquishable from schizophrenia except for some subtle dimensions. Persistent psychosis may be a complication in some individuals after methamphetamine abuse. The evidence is overwhelming that toxic psychosis develops over time and that rare cases of psychotic reactions after a single dose may have occurred in individuals already predisposed to such a reaction.

Developmental Toxicity: Because of the lack of data about methamphetamine, some of the potential consequences of its use during pregnancy must be surmised from the cocaine and amphetamine literature. Amphetamine use may result in placental abruptions (the abrupt separation of the placental from the uterine wall), premature birth, low birth weight, small head circumference, cerebral infarctions, and congenital abnormalities. The two possible mechanisms by which cocaine and amphetamines may affect pregnancy outcome are vascular, which leads to reduced blood flow to the fetus and direct toxic effect on the developing fetal brain.



Identifying Abuse and

Treatment

Users are referred to as a Meth head (regular user), Meth monster (one who has a violent reaction to methamphetamine), or Speed freak (habitual user of methamphetamine).

- The person may exhibit anxiousness, nervousness, incessant talking, extreme moodiness and irritability, purposelessness, repetitious behavior- such as picking at skin or pulling out hair, sleep disturbances, false sense of confidence and power, aggressive or violent behavior, disinterest in previously enjoyed activities, and severe depression.
- A "tweaker" using alcohol while on methamphetamine can be identified by looking at their eyes. Their eyes will jerk back and forth when they look out of the corner of their eyes (a horizontal-gaze nystagmus).
- The chronic user of powdered methamphetamine is often undernourished with a gaunt appearance, poor hygiene, and bad teeth. Chronic abusers are violent and suffer rapid mood swings, with behavior going from friendly to hostile in seconds.
- If an abuser has taken a lethal dose of dmethamphetamine, the heart rate will rapidly increase and

the abuser will collapse and suffer a heart attack or a stroke. The only overt signs of overdose are an abnormally high temperature or the symptoms of a heart attack or stroke.

High-Intensity Abuse Indicators

- Weight loss- D-methamphetamine literally eats away at the body fat and muscles. High-intensity abusers often lose 50-100 pounds.
- Central pallor- D-methamphetamine raises the blood pressure and increases the pulse; this, in turn, constricts the blood vessels at the skin's surface. The result: the center of the face becomes very pale.
- Sweating- Body temperature increases if the abuser takes enough d-methamphetamine. The abuser begins to sweat, most frequently on the upper lip and brows.
- Body odor- The abuser loses interest in personal hygiene. D-methamphetamine is not a clean drug, thus its chemicals are in the abuser's perspiration and emit a putrid smell resembling glue and mayonnaise.
- Bad teeth- The chronic abuser's teeth turn first gray and then black.
- Scars/open sores on exposed skin- The scars indicate that the abuser has experienced formification or

"crank bugs." Formification is an advanced form of d-methamphetamine-induced hallucination during which the abuser sees bugs on his skin. The individual scratches at the "bugs," trying to remove them, but instead the abuser gouges the skin, leaving scars. Open sores indicate recent d-methamphetamine use.

Paraphernalia includes straws or other inhaling tubes, syringes and needles, pocket mirrors and razor blades for preparing "lines" of powder for inhaling.



Drug Testing

Detection levels are dependent on dose, method of administration, and individual body chemistry. The following times are generalizations:

- Methamphetamine's high lasts anywhere from 8 to 24 hours, and 50 percent of the drug is removed from the body in 12 hours.
- Methamphetamine will stay in the plasma between 4 to 6 hours.
- It can be detected in the urine one hour after use and up to 72 hours after use.
- It can be detected in the body for 2 to 4 days.

Treatment

Demographically, those seeking treatment for methamphetamine abuse are predominately white, equally male and female, and between 25 and 35 years old. Methamphetamine abusers have similar success rates as heroin, crack/cocaine, "speedball" or marijuana users in quitting drug use. Methamphetamine is typically used on a regular daily basis and users tend to integrate their drug use into many of their daily activities. Withdrawal frequently doesn't occur for 90 days from the time of the last use, making treatment a longtime process. The most effective treatments for methamphetamine addiction are cognitive behavioral interventions. These approaches are designed to help modify the patient's thinking, expectancies, and behaviors and to increase skills in coping with various life stressors. The 12 step program has been shown to have the greatest success rate among methamphetamine users.

Number of admissions in fiscal year with methamphetamine as the primary substance abuse problem in Nebraska:

0	1991-2	79
0	1992-3	100
0	1993-4	122
0	1994-5	318
0	1995-6	457
@	1996-7	645

The life span of dmethamphetamine abusers is an average of 10 years from the onset of drug use due to medical complications resulting from the abuse.

National Use Trends

Questions about perceived risk of crystal methamphetamine (ice) use were introduced in The Monitoring the Future Survey in 1990, and the results show what may be an important reason for its lack of rapid spread. More than half of all seniors and young adults perceive it as a quite dangerous drug, perhaps because it has been likened to crack in most media accounts. Both drugs are burned and the fumes inhaled, both are stimulants, and both can produce a strong dependence. There is rather little difference in these attitudes by age. Additional statistics of note from the survey include:

- When asked "How much do you think people risk harming themselves (physically or in other ways), if they try crystal meth (ice)?" 54.4% to 58.5% of 18-30 year-olds surveyed in 1995 said they were at "great risk."
- When asked, "How difficult do you think it would be for you to get "Ice", if you wanted some?" 27% of 18 year-olds said it would be "fairly easy" or "very easy" to get, in 1995.
- The use of crystal methamphetamine (ice) by 19 to 32 year-olds is concentrated primarily in the Western region of the country, 3.5% annual prevalence vs. 0.1% -0.7% for all other regions. This is also the case for high school seniors.

- Crystal methamphetamine (ice) is used by small percentages of both males (1.6% annual prevalence) and females (0.5%).
- The use of crystal methamphetamine (ice) has remained at fairly low rates since it was first measured in 1990. However its annual prevalence has risen from 0.4% in 1992 to 1.2% by 1995.
- Methamphetamine use is highest in Honolulu, Hawaii, and western areas of the continental United States. In recent years, methamphetamine use has increased in both rural and urban areas of the South and Midwest.

The Situation in Nebraska

Nebraska has a major drug importation and trafficking problem. The Interstate system and central location of Nebraska make it a major methamphetamine trade route. Nebraska has three designated HIDTA (High Intensity Drug Trafficking Area) task forces who are addressing the problem in conjunction with other drug task forces in Nebraska.

- The Nebraska Department of Probation indicates a 789% increase in probationers testing positive for methamphetamine (58 in 1993, 145 in 1994, 516 in 1996).
- Importation of methamphetamine is rising. In 1996, the

- Nebraska State Patrol reported total seizures of 21.73 pounds of methamphetamine. In comparison, during January through June of 1997 their total seizures were 91.53 pounds.
- Nebraska State Patrol Forensic lab in Lincoln, for the period June 97 - February 98, tested 1483 methamphetamine samples; 1896 cases were submitted; 11,476.44 grams were analyzed.
- In Omaha, there were 475 arrests made for 26,732 grams of methamphetamine in 1997.
- Three teenagers died from methamphetamine overdoses in 1997.

For More Information

•Alcohol and Drug Information Clearinghouse (Nebraska)	800-648-4444
•Panhandle Substance Abuse Council (Region I)	308-632-3044
•Region II Prevention Center	308-534-0440
•Central Nebraska Council on Alcoholism (Region III)	308-384-7365
•Hastings Area Council on Alcoholism (Region III)	402-463-0524
•Region III Behavioral Health Services	308-237-5113
•PROJECT ACCESS (Region VI)	402-370-3113
•Lincoln Council on Alcoholism and Drugs (Region V)	402-475-2694
•Rural Region V Prevention Center	402-474-0930
•PRIDE Omaha(Region VI)	402-397-3309
•Region VI Mental Health, Alcoholism and Drug Abuse	402-444-6573

A publication of the Alcohol and Drug Information Clearinghouse and Nebraska Prevention Information Network. Printed 1998.

Administration



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